

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-10. (Canceled)

11. (Currently Amended) An apparatus for limiting the power consumed by electrical equipment circuits that may be connected to power sources providing varying voltages, that apparatus comprising:
load circuits having a designed power limit;
input power processing circuits positioned between the load circuits and a power source, the input power processing circuits including:
a current sensing circuit that detects a magnitude of electric current flowing to the load circuits and producing a first signal level that indicates the magnitude of current;
a comparator connected to the current sensing circuit and having a first input to which the first signal level is applied, a second input connected to a source of a reference signal level, and a comparator output at which an output signal is produced in response to comparing the first signal level and the reference signal level;
a circuit branch connected to the comparator and which alters one of the first signal level and the reference signal level in response to determination of voltage applied to the load circuits, which results in an output signal indicating when electric power consumed by the load exceeds a threshold level;
and a device connected to the comparator output and disconnecting flow of electric current from the power source to the load circuits in response to the output signal
whereby electrical power is blocked from entering the load circuits at a current threshold value that is dependant upon the voltage applied to the load circuits to limit power to the load circuits,

~~The apparatus as recited in claim 7~~ wherein the circuit branch comprises: a circuit element connected to the current sensing resistor and producing a signal indicating when

voltage applied to the load circuits exceeds a defined magnitude; and a second operational amplifier having an input coupled to the circuit element and having a second output connected to the second input of the comparator.

12. (Currently Amended) An apparatus for limiting the power consumed by electrical equipment circuits that may be connected to power sources providing varying voltages, that apparatus comprising:

load circuits having a designed power limit;

input power processing circuits positioned between the load circuits and a power source, the input power processing circuits including:

a current sensing circuit that detects a magnitude of electric current flowing to the load circuits and producing a first signal level that indicates the magnitude of current;

a comparator connected to the current sensing circuit and having a first input to which the first signal level is applied, a second input connected to a source of a reference signal level, and a comparator output at which an output signal is produced in response to comparing the first signal level and the reference signal level;

a circuit branch connected to the comparator and which alters one of the first signal level and the reference signal level in response to determination of voltage applied to the load circuits, which results in an output signal indicating when electric power consumed by the load exceeds a threshold level;

and a device connected to the comparator output and disconnecting flow of electric current from the power source to the load circuits in response to the output signal

whereby electrical power is blocked from entering the load circuits at a current threshold value that is dependant upon the voltage applied to the load circuits to limit power to the load circuits,

~~The apparatus as recited in claim 7~~ wherein the circuit branch comprises: a first resistor a Zener diode connected in series with the first resistor between the current sensing resistor and circuit ground, thereby forming a sensing node between the first resistor and the Zener diode; a second resistor, a third resistor and a fourth resistor connected in series coupling the sensing node to the second input of the comparator; and

second operational amplifier having one input connected to a point between the second resistor and the third resistor, another input connected to the circuit ground, and an output connected to another point between the third resistor and the fourth resistor.

13-20. (Canceled)

21. (Previously Presented) An apparatus for controlling application of electric power from a power source to a load, that apparatus comprising:

an input terminal;

a current sensing resistor connected between the input terminal and the load, wherein voltage across the current sensing resistor indicates a level of current flowing to the load;

a first operational amplifier having a first input connected to a first side of the current sensing resistor, a second input connected to a second side of the current sensing resistor, and having a first output at which an output voltage is produced which indicates the level of current flowing to the load;

a comparator having a first comparator input coupled to the first output of the first operational amplifier, second comparator input connected to a source of a reference voltage, and a comparator output at which an output signal is produced;

a circuit element connected to the current sensing resistor and producing a control signal indicating an amount that voltage applied to the load exceeds a defined magnitude;

a second operational amplifier having an input coupled to the circuit element and having a second output connected to the second input of the comparator, wherein the second operational amplifier alters voltage at the second input in response to the control signal so that the output signal of the comparator indicates when power consumed by the load exceeds a threshold level;

and a disconnect device connected to the comparator output and selectively disconnecting the load from the power source in response to a signal at the comparator output.

wherein the circuit element comprises a Zener diode;

further comprising: a first resistor coupling the Zener diode to circuit ground, thereby forming a sensing node between the first resistor and the Zener diode; and a second resistor, a third resistor and a fourth resistor connected in series between the sensing node and the second input of the comparator; wherein the input of the second operational amplifier is connected to a point between the second resistor and the third resistor, and the second output of the second operational amplifier is connected to another point between the third resistor and the fourth resistor.

22. (Previously Presented) The apparatus as recited in claim 21 further comprising a transistor having a control electrode connected to the output of the first operational amplifier, and having a conduction path that connects the first input of the first operational amplifier to the first comparator input.

23. (Previously Presented) The apparatus as recited in claim 21 further comprising a bias resistor coupling the one input of the comparator to circuit ground.

24. (Previously Presented) The apparatus as recited in claim 21 further comprising an input resistor coupling the first input of the operational amplifier to the first side of the current sensing resistor.

25. (New) An apparatus for limiting power consumption by a load that may be connected to power sources of varying voltages, the apparatus comprising:

an input terminal that receives a value indicative of an input voltage to a load, the load configured to operate during normal operation with a power consumption value that is less than a power consumption limit value; and

a current limiting circuit to the input terminal and operative to disconnect the load from the input voltage when current to the load exceeds a current threshold, and wherein the current threshold varies in response to variations in input voltage such that a product

of the current threshold and input voltage does not exceed the power consumption limit value.

26. (New) The apparatus of claim 25 further comprising circuitry connected to receive the value and compare the value to the current threshold and modulate the input voltage based on the comparison to keep power to the load relatively constant.

27. (New) The apparatus of claim 25 further comprising circuitry that compares the input voltage to a reference voltage for the current threshold and adjusts the current threshold so that the current threshold varies as a function of the input voltage to keep power to the load relatively constant.